

Abstract

Method for forming ferrocapacitors and FeRAM devices

A vertical capacitor of an FeRAM device is formed by depositing conductive material and etching it to form electrodes, which are located over openings in
5 an insulating layer so that they are electrically connected to lower levels of the structure. A layer of ferroelectric material is formed on the sides of the electrodes, and etched to a desired, uniform thickness. Conductive material is deposited over the ferroelectric material to form a uniform surface onto which
10 another insulating layer can be deposited. Since this process does not include etching of an insulating layer at a time between the formation of the electrodes and the deposition of the ferroelectric material, no fences of insulating material are formed between them. The geometry can be accurately controlled, to give uniform electric fields and reliable operating parameters.

[Fig. 11]